

# **AN ASSESSMENT OF INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS [IMCI] SCREENING FOR AIDS BASED ON WHO CRITERIA AND MODIFICATIONS USING A RETROSPECTIVE REVIEW OF PAEDIATRIC CASE RECORDS FROM EDENVALE HOSPITAL**

**Thein Win**

**A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg in partial fulfilment of the requirements for the degree of Master of Science in Medicine in the field of Child Health.**

**Johannesburg, 2006**

## DECLARATION

I, Thein Win declare that this research report is my own work except to the extent indicated in the reference citations and acknowledgements. It is being submitted for the degree of Master of Science in Medicine in the field of Child Health, to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination at this or any other Universities.

The Ethics Committee on Human Research, University of Witwatersrand approved the study unconditionally. The medical ethics clearance certificate number is M02-04-32 (5 May 2002).

A handwritten signature in black ink, appearing to be 'Thein Win', with the name 'TWIN' written in capital letters below it.

(Thein Win)

9 May 2006

## **DEDICATION**

**To my late mother, Daw Kyi Kyi.**

**To my family, Theingi Aung and two sons, Win Htoo Aung and Win Myint Aung with  
thanks for not worrying about all the hours spent away from them.**

**To Nobel Peace Laureate, Daw Aung San Suu Kyi, non-violent freedom fighter of Burma  
who has given me moral inspiration.**

## **ABSTRACT**

The study aimed to evaluate IMCI guidelines, developed to assess children with Suspected Symptomatic HIV [SSHIV] as a screening tool for AIDS.

### **OBJECTIVES**

1. To look at the agreement between IMCI classification for SSHIV and WHO clinical case definition for AIDS using a retrospective record review of the same hospitalised children.
2. To determine the sensitivity, specificity, positive predictive values and likelihood ratios of the IMCI SSHIV criteria (Guidelines 2001), WHO clinical case definition for paediatric AIDS and Bloemfontein Proposed simplified case definition for paediatric SSHIV, using HIV ELISA results in children older than 15 months as a gold standard.

### **METHODS**

The study involved 304 children in the IMCI age range who were admitted to the Edenvale Hospital during the study period and who met all the inclusion and exclusion criteria. These children were assessed with IMCI criteria and WHO criteria for AIDS. [Objective 1]

The findings of 50 children above 15 months of age with ELISA results were compared using 3 sets of criteria. [IMCI, WHO and Bloemfontein proposed simplified case definition for paediatric SSHIV] [Objective 2]

### **FINDINGS**

IMCI and WHO criteria for AIDS were the same in 158 [52%] of the 304 children. Almost all [22 out of 23 children] with WHO criteria for AIDS were also classified by IMCI criteria as Suspected Symptomatic HIV. [Objective 1]

IMCI criteria had the highest sensitivity [85.7%], while WHO criteria had the highest specificity [88%] based on ELISA results. [Objective 2]

## **CONCLUSION**

Based on the above findings, IMCI criteria could be considered as a screening tool to select children aged 15 months and above for appropriate laboratory investigation for HIV infection confirmation in remote areas. WHO criteria for AIDS could be considered for exclusion of AIDS in children aged 15 months and above in remote areas where laboratory facilities are not available.

In this study, reliable findings could not be obtained in children younger than 15 months.

## **ACKNOWLEDGEMENTS**

I am most grateful to my supervisors, Professor L. Wagstaff, Emeritus Professor of Community Paediatrics (University of Witwatersrand), who gave me incredible support and supervision; Professor Sharon Fonn, Head, School of Public Health, Faculty of Health Services, University of Witwatersrand; Dr. Renay Weiner, Specialist, Public Health Medicine, School of Public Health; and Professor Haroon Saloojee, Head, Division of Community Paediatrics, Department of Paediatrics and Child Health for their guidance, support and encouragement.

I would also like to thank the following persons:

- ◆ Dr. Kernes, Chief Executive Officer, Edenvale Hospital for allowing me to use the patient records for this research report;
- ◆ Mr. Kwena Mokolobotlo, technician from the laboratory, who helped me to find the cases for this research study and whose efforts saved me valuable time;
- ◆ My friend, Dr Khin San Tint, Women's Health Project, who offered constructive criticism of my dissertation;
- ◆ Sisters Lenah Mphane, Regina Matshele and Devi Govindsamy from the paediatrics ward for all their assistance with patient records and for filing the cases;
- ◆ Mr. Zwelakhe Mtsaka from the Wits Writing Centre, University of the Witwatersrand and Ms Joy Hull, professional research writing editor for help in the writing process, including the editing of my paper.

# **CONTENTS**

<b>TITLE</b>	<b>i</b>
<b>DECLARATION</b>	<b>ii</b>
<b>DEDICATION</b>	<b>iii</b>
<b>ABSTRACT</b>	<b>iv</b>
<b>ACKNOWLEDGEMENTS</b>	<b>vi</b>
<b>CONTENTS</b>	<b>vii</b>
<b>TABLE OF CONTENTS</b>	<b>viii</b>
<b>ETHICS COMMITTEE CLEARANCE</b>	<b>xi-xii</b>
<b>LIST OF TABLES</b>	<b>xiii</b>
<b>ABBREVIATIONS</b>	<b>xiv</b>

# TABLE OF CONTENTS

## CHAPTER 1: INTRODUCTION & LITERATURE REVIEW

1.1.	INTRODUCTION	1
1.1.1	BACKGROUND TO IMCI	1
1.1.2	TECHNICAL BASIS & REVIEW OF IMCI CRITERIA OF SSHIV	2
1.1.3	SIGNIFICANCE & RATIONALE OF THIS STUDY	2
1.2	LITERATURE REVIEW	4
1.2.1	DIAGNOSIS OF PAEDIATRIC HIV INFECTION	4
1.2.2	WHO CLINICAL CASE DEFINITION FOR AIDS IN CHILDREN	5
1.2.3	PREVIOUS STUDIES RELATED TO IMCI SSHIV INFECTION	6
A	Horwood <i>et al</i> Study (Ngwelezane Hospital)	6
B	van Gend <i>et al</i> Study (Bloemfontein)	7
C	Jones <i>et al</i> Study (Coronation Hospital)	11
D	Factor <i>et al</i> Study (Bangladesh)	12
E	Conclusion	13

## CHAPTER 2: METHODS

2.1	AIM & OBJECTIVES OF THE STUDY	14
2.2	STUDY METHODS	14
2.2.1	Study site	14



2.2.2	Study participants	15
2.2.3	Selection criteria	15
2.2.4	Inclusion Criteria	16
2.2.5	Exclusion criteria	17
2.2.6	Study Measurements	17
2.3	DATA ANALYSIS	17
2.4	ETHICAL CONSIDERATIONS AND APPROVAL	18
2.5	FINANCIAL SUPPORT	19
 <b>CHAPTER 3: RESULTS</b>		
3.1	AGREEMENT BETWEEN IMCI CLASSIFICATION FOR SSHIV AND WHO CLINICAL CASE DEFINITION FOR AIDS	20
3.2	COMPARISONS BETWEEN IMCI SSHIV, WHO CLINICAL CASE DEFINITION AND BLOEMFONTEIN PROPOSED SIMPLIFIED CASE DEFINITION FOR SSHIV INFECTION	22
3.3	DEMOGRAPHIC DATA OF SAMPLE	23
3.4	CLINICAL FEATURES OF IMCI & WHO CLINICAL CASE DEFINITION FOR AIDS IN THIS STUDY	24
 <b>CHAPTER 4: DISCUSSION, RECOMMENDATIONS &amp; CONCLUSIONS</b>		
4.1	STRENGTHS & DEFICIENCIES OF THREE CRITERIA OF DIAGNOSIS OF HIV INFECTION IN CHILDREN	26
4.2	DISCUSSION BASED ON RESULT OF EDENVALE STUDY	28

4.3	LIMITATIONS OF THE STUDY	30
4.4	RECOMMENDATIONS	30
4.5	CONCLUSION	31
	<b>APPENDICES</b>	32-35
	Appendix A	32
	Appendix B	33
	Appendix C	34
	Appendix D	35
	<b>REFERENCES</b>	36-37

## **ETHICS COMMITTEE CLEARANCE CERTIFICATE**

**UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG**

Division of the Deputy Registrar (Research)

**COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (MEDICAL)**

Ref: R14/48 Win

**CLEARANCE CERTIFICATE**

**PROTOCOL NUMBER** M02-04-32

**PROJECT**

To Assess & Compare Suggestive Features  
of Human Immunodeficiency Virus Infection  
And Tuberculosis According To Integrated  
Management of Childhood Illness (IMCI))  
Criteria With Hospital Diagnosis

**INVESTIGATORS**

Dr T Win

**DEPARTMENT**

School of Public Health, Wits Medical School

**DATE CONSIDERED**

02-04-05

**DECISION OF THE COMMITTEE \***

Approved unconditionally

**DATE** 02-05-20

**CHAIRMAN**



(Professor P E Cleaton-Jones)

\* Guidelines for written "informed consent" attached where applicable.

c.c Supervisor: Prof LA Wagstaff

Dept of School of Public Health, Wits Medical School

Wits/JandR/SH:REF/97:nbw/02-04-32

**DECLARATION OF INVESTIGATOR(S)**

To be completed in duplicate and ONE COPY returned to the Secretary at Room 100C1, 10th Floor,  
Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned  
research and I/we guarantee to ensure compliance with those conditions. Should any departure to be

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

## LIST OF TABLES

TABLE 1:	Agreement between IMCI SSHIV and WHO clinical case definition for AIDS	20
TABLE 2:	Comparisons between IMCI SSHIV, WHO clinical case definition and the Bloemfontein proposed adaptation (BFT) based on positive HIV ELISA reaction (15 months and above age group)	22
TABLE 3:	Gender distribution of the children with ELISA results	23
TABLE 4:	ELISA status in age group divisions	23
TABLE 5:	Frequency of clinical features in all children classified as IMCI SSHIV infection	24
TABLE 6:	Frequency of clinical features in all children diagnosed as WHO paediatric AIDS (SSHIV)	25

## ABBREVIATIONS

AFRO	-	Africa Regional Office
AIDS	-	Acquired Immunodeficiency Syndrome
CAH	-	The Department of Child and Adolescent Health and Development
ELISA	-	Enzyme Linked Immuno-Sorbent Antibody
HIV	-	Human Immunodeficiency Virus
IMCI	-	Integrated Management of Childhood Illness
LR	-	Likelihood Ratios
PCR	-	Polymerase Chain Reaction
PEM	-	Protein Energy Malnutrition
PMTCT	-	Prevention of Mother to Child Transmission
PPV	-	Positive Predictive Value
RTHC	-	Road to Health Card
SSHIV	-	Suspected Symptomatic HIV
UNAIDS	-	United Nations Programme on AIDS
UNICEF	-	United Nations Children's Fund
WHO	-	World Health Organization